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REMARKS

Applicants have amended claim 1 to highlight that their process consists of the steps of heating a specified iron article in a non-carburizing atmosphere to convert it from a ferritic structure to an austenitic structure and thereafter exposing the austenitic structure to a carburizing atmosphere. Support for the amendment can be found throughout the specification. For example, in paragraph [0015], it clearly states that exposure to the carburizing atmosphere is conducted "where", i.e., after it has been converted to the austenitic state. See also Example 1 where the ferritic article is first converted to the austenitic state and then the atmosphere is changed to a carbon saturated environment.

The Examiner has rejected claims 1 and 2 under 35 USC 103(a) as unpatentable over Ramanarayanan ("Raman") in view of Garg. Applicants respectfully request the Examiner to reconsider and withdraw that rejection.

Raman does not disclose or suggest heating to form an austenitic structure and then heating at 727°C to 900°C in a carbon atmosphere followed by cooling as required in applicants' claims. Raman clearly teaches heating in a carburizing atmosphere at above 900°C (column 3, lines 1 to 5). As is shown in Figure 4 of applicants' specification, carbonization of austenite at above 900°C does not result in a continuous pearlite structure.

Garg is concerned with producing atmospheres suitable for carburizing carbon steel articles. Importantly, Garg does not disclose or suggest heating the steel to the austenitic range before carburization as is required by applicants' claimed method. Garg does disclose carburizing metal articles by heating them to a temperature of from 800°C to 950°C under a carburizing atmosphere. However, there is no motivation for using the Garg temperature range in the Raman process because Raman specifically states that heating in a carburizing atmosphere is to be conducted above 900°C whereas

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when the article is not heated in a carburizing atmosphere it is heated above 900°C and thereafter at about 675°C.

Thus, the combined references fail to render claims 1 and 2 obvious.

The Examiner rejected claims 6, 7, 10 and 11 under 35 USC 103(a) as unpatentable over Raman in view of Garg in further view of Kerridge. Applicants respectfully request the Examiner to reconsider and withdraw that rejection.

The deficiencies of Raman in view of Garg are described above and Kerridge does nothing to overcome those deficiencies.

Kerridge is cited primarily for his teaching with respect to the effect of time on carburization in a fused salt bath. But this has nothing to do with applicants' process and suggests an attempt at hindsight reconstruction of applicants' invention, which of course is impermissible.

In view of the foregoing comments and amendments, applicants respectfully submit that their claims are patentable over the cited art and request the Examiner to pass the case to issue.

Respectfully submitted,



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☒ Pursuant to 37 CFR 1.34(a)

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